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52. A method of storing a tray stack having a plurality of individual trays carrying microelectronic devices, the tray stack having a first exterior tray at one end of the tray stack and a second exterior tray at an opposite end of the tray stack, the method comprising:

inserting the tray stack along a load/unload path into a casing of a tray retaining device until the first exterior tray contacts a cross-member of the tray retaining device; *the cross member being selectively movable relative to the tray retaining device*

restricting the individual trays from moving laterally with respect to the load/unload path; and

selectively impeding movement along the load/unload path in a first direction by moving a retaining element attached to the tray retaining device from a load/unload position to a storage position, the retaining element allowing the tray stack to move along the load/unload path in the load/unload position and the retaining element

engaging the second exterior tray in the storage position to impede movement of the tray stack along the load/unload path in a second direction.

53. The method of claim 52 wherein inserting the tray stack comprises positioning the retaining element in the load/unload position and sliding the tray stack along the load/unload path and into the casing.

54. The method of claim 52 wherein inserting the tray stack comprises attaching the tray retaining device to a processing station of a processing machine by positioning the retaining element in the load/unload position in which the retaining element engages a mounting element of the processing station and sliding the tray stack along the load/unload path and into the casing.

55. The method of claim 52 wherein:
the cross-member is a floating plate that is moveable along the load/unload path in the casing;

inserting the tray stack comprises attaching the tray retaining device to a processing station of a processing machine by positioning the retaining element in the load/unload position in which the retaining element engages a mounting element of the processing station and sliding the tray stack along the load/unload path and into the casing, the floating plate moving in the first direction; and

the method further comprises preventing the floating plate from moving when the retaining element is in the storage position and allowing the floating plate to move when the retaining element is in the load/unload position.

56. A method of storing a tray stack having a plurality of individual JEDEC trays carrying microelectronic devices, the tray stack having a first exterior tray at one end of the tray stack and a second exterior tray at an opposite end of the tray stack, the method comprising:

providing a portable tray retaining device configured to hold the stack of JEDEC trays, the tray retaining device including a casing, a plurality of retaining elements coupled to the casing and a driving element moveably coupled to the casing, wherein the casing includes a guide structure with a first end and a second end, a cross-member extending across at least a portion of the guide structure at least proximate to the first end, and an opening at least proximate to the second end through which the JEDEC trays can pass into or out of the casing, wherein the retaining elements are moveable between a storage position and a load/unload position, the retaining elements projecting into the guide structure in the storage position to hold the JEDEC trays in the retainer, and the retaining elements projecting away from the guide structure in the load/unload position to allow the JEDEC trays to pass through the opening, and wherein the cross-member is moveably coupled to the casing to move along a load/unload path to push the tray stack toward the second end of the casing;

inserting the tray stack along the load/unload path into the casing; and

moving the retaining elements from the load/unload position to the storage position in which the retaining elements engage the second exterior tray and the cross-member engages the first exterior tray to restrict movement of the tray stack along the load/unload path.

57. The method of claim 56 wherein inserting the tray stack comprises positioning the retaining element in the load/unload position and sliding the tray stack along the load/unload path and into the casing.

58. The method of claim 56 wherein inserting the tray stack comprises attaching the tray retaining device to a processing station of a processing machine by positioning the retaining element in the load/unload position in which the retaining

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element engages a mounting element of the processing station and sliding the tray stack along the load/unload path and into the casing.

59. The method of claim 56 wherein:

the cross-member is a floating plate that is moveable along the load/unload path in the casing;

inserting the tray stack comprises attaching the tray retaining device to a processing station of a processing machine by positioning the retaining element in the load/unload position in which the retaining element engages a mounting element of the processing station and sliding the tray stack along the load/unload path and into the casing; and

the method further comprises preventing the floating plate from moving when the retaining element is in the storage position and allowing the floating plate to move when the retaining element is in the load/unload position.

60. A method of processing microelectronic devices in a tray stack having a plurality of individual trays carrying the microelectronic devices, the tray stack having a first exterior tray at one end of the tray stack and a second exterior tray at an opposite end of the tray stack, the method comprising:

inserting the tray stack along a load/unload path into a casing of a tray retaining device until the first exterior tray contacts a cross-member of the retaining device, the casing being configured to restrict the individual trays from moving laterally with respect to the load/unload path;

moving a retaining element attached to the tray retaining device from a load/unload position to a storage position, the retaining element allowing the tray stack to move along the load/unload path in the load/unload position and the retaining element engaging the second exterior tray in the storage position to restrict movement of the tray stack along the load/unload path;

releasably attaching the tray retaining device to the receiving station of the processing machine;

releasing the tray stack to move along the load/unload path by moving the retaining element from the storage position to the load/unload position to disengage the retaining element from the second exterior tray of the tray stack; and

separating individual trays from the tray stack and processing the microelectronic devices on the individual trays in the processing machine.

A2 61. The method of claim 60 wherein releasably attaching the tray ^{retaining} (retention) device to the receiving station occurs when the retaining element moves from the storage position to the load/unload position by engaging the retaining element with a mounting element attached to the processing machine.

By 62. The method of claim 60 wherein inserting the tray stack comprises positioning the retaining element in the load/unload position and sliding the tray stack along the load/unload path and into the casing.

63. The method of claim 60 wherein:
the cross-member is a floating plate that is moveable along the load/unload path in the casing; and

the method further comprises preventing the floating plate from moving when the retaining element is in the storage position and allowing the floating plate to move when the retaining element is in the load/unload position.